

**ABSTRACT OF THE DISCLOSURE**

A DNA-Chip includes a flat carrier and an array of spots containing probe molecules (oligonucleotides) which are arranged on said carrier. Each spot is associated with a microelectrode arrangement for impedance spectroscopic detection of binding events occurring between the probe molecules and target molecules (DNA fragments) applied by way of an analyte solution. In order to increase the sensitivity or the binding specific measuring effects of the biochip, the electrode arrangement is at least partially embedded in a hydrophilic reaction layer containing probe molecules and which is permeable to target molecules.